

2.4 Day 2 Worksheet

Date _____ Period _____

Solve for the variable. Determine if there is one solution, infinitely many solutions, or no solutions.

1) $2n + 5 = -3 + n + 6 + 7$

$$\begin{array}{r} 2n + 5 = n + 10 \\ -n \quad -n \\ \hline n + 5 = 10 \\ -5 \quad -5 \\ \hline n = 5 \end{array}$$

$n = 5$

2) $1 + 5b + 6b = -13 - 3b$

$$\begin{array}{r} 1 + 11b = -13 - 3b \\ +3b \quad +3b \\ \hline 1 + 14b = -13 \\ -1 \quad -1 \\ \hline 14b = -14 \\ \frac{14}{14} \quad \frac{-14}{14} \\ \hline b = -1 \end{array}$$

$b = -1$

3) $1 + a + 1 = -3 + a - 3 + 8$

$$\begin{array}{r} 2 + a = a + 2 \\ -a \quad -a \\ \hline 2 = 2 \end{array}$$

$2 = 2 \leftarrow \text{TRUE}$

 $\leftarrow \text{SO}$ IDENTITY, ∞ SOLUTIONS

4) $14 + 4v = 2 + 2v$

$$\begin{array}{r} 14 + 4v = 2 + 2v \\ -2v \quad -2v \\ \hline 14 + 2v = 2 \\ -14 \quad -14 \\ \hline 2v = -12 \end{array}$$

$\frac{2v}{2} = \frac{-12}{2}$

$v = -6$

5) $8x - 3 = 3x + 4x$

$$\begin{array}{r} 8x - 3 = 7x \\ -7x \quad -7x \\ \hline x - 3 = 0 \\ +3 \quad +3 \\ \hline x = 3 \end{array}$$

$x = 3$

6) $-16 - 8n = -4n - 8n$

$$\begin{array}{r} -16 - 8n = -12n \\ +12n \quad +12n \\ \hline -16 + 4n = 0 \\ +16 \quad +16 \\ \hline 4n = 16 \end{array}$$

$\frac{4n}{4} = \frac{16}{4}$

$n = 4$

7) $-6(1 - 8b) = 36 + 6b$

$$\begin{array}{r} -6(1 - 8b) = 36 + 6b \\ -6 \quad -6 \quad +48b \\ \hline -6 + 48b = 36 + 6b \\ -6b \quad -6b \\ \hline -6 + 42b = 36 \\ +6 \quad +6 \\ \hline 42b = 42 \\ \frac{42}{42} \quad \frac{42}{42} \\ \hline b = 1 \end{array}$$

$b = 1$

8) $9 + x = -5(x - 4) - 5$

$$\begin{array}{r} 9 + x = -5(x - 4) - 5 \\ -5(x - 4) = -5x + 20 \\ \hline 9 + x = -5x + 20 - 5 \\ 9 + x = -5x + 15 \\ +5x \quad +5x \\ \hline 9 + 6x = 15 \\ -9 \quad -9 \\ \hline 6x = 6 \\ \frac{6x}{6} = \frac{6}{6} \\ \hline x = 1 \end{array}$$

$\frac{6x}{6} = \frac{6}{6}$

$x = 1$

10) $40 + 8n = 8(8n - 2)$

$$\begin{array}{r} 40 + 8n = 8(8n - 2) \\ 8(8n - 2) = 64n - 16 \\ \hline 40 + 8n = 64n - 16 \\ -8n \quad -8n \\ \hline 40 = 56n - 16 \\ +16 \quad +16 \\ \hline 56 = 56n \\ \frac{56}{56} = \frac{56n}{56} \end{array}$$

$n = 1$

11) $-6(k - 8) - 2 = 2(-2k + 5) - 2k$

$$\begin{array}{r} -6(k - 8) - 2 = -4k + 10 - 2k \\ -6(k - 8) = -6k + 48 \\ \hline -6k + 48 - 2 = -4k + 10 - 2k \\ -6k + 46 = -6k + 10 \\ +6k \quad +6k \\ \hline 46 = 10 \leftarrow \text{FALSE} \end{array}$$

NO SOLUTION

12) $4(a + 1) - 4a = -4 + 4(8 - a)$

$$\begin{array}{r} 4(a + 1) - 4a = -4 + 4(8 - a) \\ 4(a + 1) = 4a + 4 \\ \hline 4a + 4 - 4a = -4 + 32 - 4a \\ 4 = 28 - 4a \\ +4a \quad +4a \\ \hline 4 = 28 \\ -28 \quad -28 \\ \hline -24 = -4a \\ -4 \quad -4 \\ \hline 6 = a \end{array}$$

$a = 6$